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Grade 6			
Activity/Lesson	**State**	**Standards**	
The Society	KY	SCI.6.SC-6-BC-U-3	scientists vary widely in what they study and how they do their work. While there is no fixed set of steps they follow, the basic process of science involves collecting relevant evidence, logical reasoning and the use of imaginative thinking in constructing explanations for what they observe.
1901: The First Improvement	KY	SCI.6.SC-6-MF-U-2	when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
1901: The First Improvement	KY	SCI.6.SC-6-MF-S-4	represent the motion of objects and their response to unbalanced forces in a variety of ways
New Data	KY	SCI.6.SC-6-STM-S-7	investigate how important scientific advances have resulted from unexpected observations or experimental results
1902: Success at Last	KY	SCI.6.SC-6-STM-S-8	plan, present and support information from investigations using a variety of modes
1902: Success at Last	KY	SCI.6.SC-6-MF-S-4	represent the motion of objects and their response to unbalanced forces in a variety of ways
1903: Powered Flight	KY	SCI.6.SC-6-STM-S-8	plan, present and support information from investigations using a variety of modes
1903: Powered Flight	KY	SCI.6.SC-6-MF-U-2	when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
1903: Powered Flight	KY	SCI.6.SC-6-MF-S-1	use observations and appropriate tools (e.g., timer, meter stick, balance, spring scale) to document the position and motion of objects
1903: Powered Flight	KY	SCI.6.SC-6-MF-S-2	use graphical and observational data to make inferences, predictions and draw conclusions about the motion of an object as related to the mass or force involved
1903: Powered Flight	KY	SCI.6.SC-6-MF-S-4	represent the motion of objects and their response to unbalanced forces in a variety of ways
1904: Improvement in Dayton	KY	SCI.6.SC-6-MF-U-2	when any force acts on an object, the change in speed or direction depends on the size and direction of the force.
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Grade 7			
Activity/Lesson	**State**	**Standards**	
The Society	KY	SCI.7.SC-7-STM-S-3	generate investigable questions and conduct experiments or non-experimental research to address them
1901: The First Improvement	KY	SCI.7.SC-7-MF-U-1	an object remains at rest or maintains a constant speed and direction of motion unless an unbalanced force acts on it (inertia).
1901: The First Improvement	KY	SCI.7.SC-7-MF-U-2	forces acting against each other can be balanced, canceling each other out and having no net effect.
1901: The First Improvement	KY	SCI.7.SC-7-MF-S-2	test the cause and effect relationship between straight-line motion and unbalanced forces
1901: The First Improvement	KY	SCI.7.SC-7-MF-S-3	investigate balanced and unbalanced forces and their effect on objects and their motion
New Data	KY	SCI.7.SC-7-STM-U-5	investigations are conducted for different reasons, including to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories.
New Data	KY	SCI.7.SC-7-STM-S-3	generate investigable questions and conduct experiments or non-experimental research to address them
New Data	KY	SCI.7.SC-7-MF-U-4	technology used to gather data enhances accuracy and allows scientists to analyze and quantify results of investigations.
New Data	KY	SCI.7.SC-7-BC-U-4	results of scientific investigations are seldom exactly the same, but if the differences are large it is important to try to figure out why. Keeping careful records is important to help investigate what might have caused the differences.
New Data	KY	SCI.7.SC-7-BC-S-4	compare the results from a variety of investigations (based on similar hypotheses) to identify differences between their outcomes/conclusions and propose reasonable explanations for those discrepancies
1903: Powered Flight	KY	SCI.7.SC-7-MF-S-9	explore the impact of technology on measurement by making measurements with tools of varying precision, comparing the results and predicting possible impacts that variation in measurements might have in real-life investigations
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Grade 8			
Activity/Lesson	**State**	**Standards**	
The Society	KY	SCI.8.SC-8-MF-U-2	preconceived expectations can influence what people actually observe, preventing them from detecting other results. In order to maintain objectivity, different investigators should investigate the same question independently. For example, Newton's Laws are widely accepted because they have been verified by so many different observers.
The Society	KY	SCI.8.SC-8-UD-S-6	collect and analyze information to answer questions about factors influencing heredity and learned behaviors and explain how scientific knowledge has been modified as new information is revealed
1901: The First Improvement	KY	SCI.8.SC-8-EU-S-4	discuss and identify the strengths and limitations of a variety of physical and conceptual scientific models
New Data	KY	SCI.8.SC-8-MF-U-2	preconceived expectations can influence what people actually observe, preventing them from detecting other results. In order to maintain objectivity, different investigators should investigate the same question independently. For example, Newton's Laws are widely accepted because they have been verified by so many different observers.
New Data	KY	SCI.8.SC-8-MF-S-2	explain and experimentally verify how Newton's Laws show that forces between objects affect their motion, allowing future positions to be predicted from their present speeds and positions
New Data	KY	SCI.8.SC-8-MF-S-3	investigate motion of objects to generate and experimentally test predictions/conclusions. Compare and critique the results of others for accuracy, identifying strengths and weaknesses in the experiment, insisting on the use of evidence to support decisions
New Data	KY	SCI.8.SC-8-BC-U-3	scientists cannot always control experimental conditions to obtain evidence. When that is not possible, they try to observe as wide a range of natural occurrences as possible to be able to identify patterns.
1902: Success at Last	KY	SCI.8.SC-8-EU-S-4	discuss and identify the strengths and limitations of a variety of physical and conceptual scientific models

1903: Powered Flight	KY	SCI.8.SC-8-MF-S-2	explain and experimentally verify how Newton's Laws show that forces between objects affect their motion, allowing future positions to be predicted from their present speeds and positions
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Grades 9-12			
Activity/Lesson	**State**	**Standards**	
The Society	KY	SCI.9-12.SC-H-BC-S-7	investigate the historical development and revision of a variety of accepted scientific laws, theories and claims
1901: The First Improvement	KY	SCI.9-12.SC-H-STM-U-9	accurate record-keeping, openness and replication are essential for maintaining credibility with other scientists and society.
1901: The First Improvement	KY	SCI.9-12.SC-H-MF-U-2	the usefulness of a model can be tested by comparing its predictions to actual observations in the real world. But a close match does not necessarily mean that the model is the only “true” model or the only one that would work.
1901: The First Improvement	KY	SCI.9-12.SC-H-MF-S-9	predict which forces would be predominant in a given system and explain
New Data	KY	SCI.9-12.SC-H-STM-S-15	generate investigable questions and conduct experiments or non-experimental research to address them, using evidence to defend conclusions
New Data	KY	SCI.9-12.SC-H-MF-S-1	design and conduct investigations involving the motion of objects and report the results in a variety of ways
1902: Success at Last	KY	SCI.9-12.SC-H-MF-U-2	the usefulness of a model can be tested by comparing its predictions to actual observations in the real world. But a close match does not necessarily mean that the model is the only “true” model or the only one that would work.
1903: Powered Flight	KY	SCI.9-12.SC-H-MF-U-2	the usefulness of a model can be tested by comparing its predictions to actual observations in the real world. But a close match does not necessarily mean that the model is the only “true” model or the only one that would work.
1904: Improvement in Dayton	KY	SCI.9-12.SC-H-MF-S-1	design and conduct investigations involving the motion of objects and report the results in a variety of ways